AMENDMENT NO. 1 AUGUST 2017
TO
IS 6911 : 2017 STAINLESS STEEL PLATE, SHEET AND STRIP — SPECIFICATION

(Second Revision)

(*Page* 3, *Table* 1) — Substitute the following for the existing table:

See Table 1 on page 2.

[*Page* 6, *Table* 3, *Sl No*. (i) (3), *col* 2] — Substitute 'X02Cr12Ti' *for* 'X02Cr12TiNb.'

[*Page* 6, *Table* 3, *Sl No*. (i) (5), *col* 2)] — Substitute 'X02Cr12' *for* 'X02Cr12Ni.'

[*Page* 6, *Table* 3, *Sl No*. (iii) (12)] — Insert the following new entry and renumber the subsequent serial numbers:

Sl No.	**Grade Designation**		**Symbols***	**Annealing or Softening Temperature** °C	**Quenching Media for Annealing or Softening1)**	**Symbols2)**	**Hardening Temperature** °C	**Quenching Media for Hardening**	**Tempering Temperature** °C
	Letter Symbols [*see* IS 1762 (Part 1)]	Numerical Symbol ISS							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Austenitic Steels									
13)	X06Cr18Ni12	305	SA	1 000-1 120	w, a	-	-	-	-
14)	X04Cr19Ni10Cu3Mo	305 Cu	SA	1 000-1 120	w, a	-	-	-	-

(*Page* 7, *clause* **10.4**) — Substitute the following for the existing clause:

'**10.4** The material supplied in annealed condition and tested as per **10.1**, **10.2** and **10.3** and shall conform to the requirements of Table 4.'

(*Page* 8, *Table* 4) — Substitute the following for the existing table:

See Table 4 on page 5.

Price Group 3

Table 1 Chemical Composition, Percent

(*Clauses* 7.1 *and* 7.2)

Sl No.	**Grade Designation**	**Numerical Symbol ISS**	**C**, *Max*	**Si**, *Max*	**Mn**	**Ni**	**Cr**	**Mo**	**S**, *Max*	**P**, *Max*	**N**	**Others**
	Letter Symbol [*see* IS 1762 (Part 1)] (1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
i)	*Ferritic steels:*											
1	X 04Cr12Al	405	0.08 *Max*	1.00	1.00 *Max*	0.60 *Max*	11.5-14.5	–	0.030	0.040	–	Al 0.10-0.30
2	X 07Cr17	430	0.12 *Max*	1.00	1.00 *Max*	0.75 *Max*	16.0-18.0	–	0.030	0.040	–	–
3	X 02Cr12Ti	409	0.030 *Max*	1.00	1.00 *Max*	0.50 *Max*	10.5–11.7	–	0.020	0.040	0.030 *Max*	Ti 6x (C+N) *Min*—0.50 *Max*; Nb 0.17 *Max*
4	X 02Cr12	409 M	0.030 *Max*	1.00	0.50-1.50	1.50 *Max*	10.5-12.5	–	0.030	0.040	–	–
5	X 04Cr12	410S	0.08 *Max*	1.00	1.00 *Max*	0.60 *Max*	11.5–13.5	–	0.030	0.040	-	
6	X 02Cr18Ti	439	0.030 *Max*	1.00	1.00 *Max*	0.50 *Max*	17.0-19.0	-	0.030	0.040	0.030 *Max*	Ti [0.2+4 (C+N)] *Min*—1.1 *Max*; Al 0.15 *Max*
ii)	*Martensitic steels:*										–	–
1	X 12Cr12	410	0.08-0.15	1.00	1.00 *Max*	0.75 *Max*	11.5-13.5	–	0.030	0.040	–	–
2	X 20Cr13	420 S1	0.16-0.25	1.00	1.00 *Max*	1.00 *Max*	12.0-14.0	-	0.030	0.040	–	–
3	X 30Cr13	420 S2	0.26-0.35	1.00	1.00 *Max*	1.00 *Max*	12.0-14.0	–	0.030	0.040	–	–
4	X 40Cr13	420S3	0.35-0.45	1.00	1.00 *Max*	1.00 *Max*	12.5-14.0	–	0.030	0.040	–	–
5	X 15Cr16Ni2	431	0.10-0.20	1.00	1.00 *Max*	1.25·2.50	15.0-17.0	–	0.030	0.045	–	–
6	X 108Cr17Mo	440	0.95-1.20	1.00	1.00 *Max*	0.50 *Max*	16.0-18.0	0.75 *Max*	0.030	0.045	-	-
iii)	*Austenitic steels:*											–
1	X 10Cr17Mn6Ni4N20	201	0.15 *Max*	1.00	5.5-7.5	3.5·5.5	16.0-18.0	-	0.030	0.060	0.25 *Max*	–
2	X 07Cr17Mn12Ni4	201 A	0.12 *Max*	1.00	10.0-14.0	3.5-5.5	16.0.18.0	-	0.030	0.090	0.25 *Max*	–
3	X 10Cr18Mn9Ni5	202	0.15 *Max*	1.00	7.5-I0.0	4.0·6.0	17.0-19.0	–	0.030	0.060	0.25 *Max*	–
4	X 10Cr17Ni7	301	0.15 *Max*	1.00	2.00 *Max*	6.0-8.0	16.0-18.0	–	0.030	0.045	0.10 *Max*	–
5	X 07Cr18Ni9	302	0.15 *Max*	0.75	2.00 *Max*	8.0-10.0	17.0-19.0	–	0.030	0.045	0.10 *Max*	–
6	X 02Cr17Ni7	301L	0.03 *Max*	1.00	2.00 *Max*	6.0-8.0	16.0–18.0	–	0.030	0.045	0.20 *Max*	
7	X02Cr17Ni7N	301LN	0.03 *Max*	1.00	2.00 *Max*	6.0-8.0	16.0–18.0	–	0.030	0.045	0.07-0.20	-
8	X04Cr19Ni9	304 S1	0.07 *Max*	0.75	2.00 *Max*	8.0-10.5	17.5-19.5	–	0.030	0.045	0.10 *Max*	–
9	X 02Cr19Ni10	304 S2	0.030 *Max*	0.75	2.00*Max*	8.0.12.0	17.5-19.5		0.030	0.045	0.10 *Max*	–

Table 1 *(Continued)*

Sl No.	**Grade Designation**	**Numerical Symbol ISS**	**C**, *Max*	**Si**, *Max*	**Mn**	**Ni**	**Cr**	**Mo**	**S**, *Max*	**P**, *Max*	**N**	**Others**
	Letter Symbol [see IS 1762 (Part 1)]											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
10	X 07Cr19Ni9	304H	0.04-0.10	0.75	2.00 *Max*	8.0-10.5	18.0-20.0	–	0.030	0.045	-	–
11	X 02Cr19Ni10N	304LN	0.030 *Max*	0.75	2.00 *Max*	8.0-12.0	18.0-20.0	–	0.030	0.045	-	–
12	X 04Cr19Ni9N	304N	0.08 *Max*	0.75	2.00*Max*	8.0-10.5	18.0-20.0	–	0.030	0.045	-	-
13	X06Cr18Ni12	305	0.12*Max*	0.75	2.00 *Max*	10.5-13.0	17.0-19.0	–	0.030	0.045	-	-
14	X04Cr19Ni10Cu3Mo	305 Cu	0.08*Max*	0.50-2.50	2.00*Max*	8.5-11.5	17.0-20.5	0.75-1.50	0.030	0.045	-	Cu 0.75-3.50
15	X15Cr24Ni13	309	0.20 *Max*	1.5	2.00 *Max*	11.0-15.0	22.0-25.0	—	0.030	0.045	–	–
16	X 04Cr23Ni14	309S	0.08 *Max*	0.75	2.00 *Max*	12.0-15.0	22.0-24.0	—	0.030	0.045	-	-
17	X20Cr25Ni20	310	0.25*Max*	2.5	2.00 *Max*	18.0-21.0	24.0-26.0	—	0.030	0.045	–	–
18	X 04Cr25Ni20	310S	0.08 *Max*	1.50	2.00 *Max*	19.0–22.0	24.0-26.0	—	0.030	0.045	-	–
19	X 04Cr17Ni12Mo2	316	0.08 *Max*	0.75	2.00 *Max*	10.0-14.0	16.0-18.0	2.0-3.0	0.030	0.045	0.10 *Max*	—
20	X 02Cr17Ni12Mo2	316 L	0.030 *Max*	0.75	2.00 *Max*	10.0-14.0	16.0-18.0	2.0-3.0	0.030	0.045	0.10 *Max*	—
21	X 07Cr17Ni12Mo2	316H	0.04-0.10	0.75	2.00 *Max*	10.0-14.0	16.0-18.0	2.0–3.0	0.030	0.045	—	—
22	X 02Cr17Ni12Mo2N	316LN	0.030 *Max*	0.75	2.00 *Max*	10.0-14.0	16.0-18.0	2.0–3.0	0.030	0.045	0.10-0.16	—
23	X 04Cr19Ni13Mo3	317	0.08 *Max*	0.75	2.00 *Max*	11.0-15.0	18.0-20.0	3.0–4.0	0.030	0.045	0.10	—
24	X 02Cr19Ni13Mo3	317L	0.030 *Max*	0.75	2.00*Max*	11.0-15.0	18.0-20.0	3.0–4.0	0.030	0.045	0.10 *Max*	—
25	X 04Cr17Ni12Mo2Ti	316 Ti	0.08 *Max*	0.75	2.00 *Max*	10.0·14.0	16.0-18.0	2.0-3.0	0.030	0.045	0.10 *Max*	Ti 5x (C + N) *Min*— 0.70 *Max*
26	X 04Cr18Ni10Ti	321	0.08 *Max*	0.75	2.00 *Max*	9.0-12.0	17.0-19.0	—	0.030	0.045	0.10 *Max*	Ti 5 x(C + N) *Min*— 0.70 *Max*
27	X 04Cr18Ni10Nb	347	0.08 *Max*	0.75	2.00 *Max*	9.0-13.0	17.0-19.0	—	0.030	0.045	—	Nb 10xC – 1.00 *Max*
28	X 10Cr15Mn9Cu2Ni1N	N1	0.12 *Max*	0.75	8.5-10.5	1.0-2.0	14.5-16.0	—	0.030	0.080	0.08-0.20	Cu 1.5-2.50
29	X 8Cr16Mn8Cu2Ni2N	N2	0.10 *Max*	1.0	6.5-9.0	1.5-3.5	15.5-17.0	—	0.030	0.070	0.10-0.25	Cu 2.0-4.0
30	X 8Cr16Mn7Cu2Ni4N	N3	0.09 *Max*	0.75	6.0-8.0	4.0-6.0	16.0-17.5	—	0.030	0.070	0.05-0.15	Cu 1.5-2.50
iv)	*Duplex:*											
1	X 02Cr22Ni6Mo3N	2205	0.030 *Max*	1.00	2.00*Max*	4.5-6.5	22.0-23.0	3.0-3.5	0.020	0.03	0.14-0.20	-
2	X 02Cr23Ni4CuN	2304	0.030 *Max*	1.00	2.50*Max*	3.0-5.5	21.5-24.5	0.05-0.60	0.030	0.04	0.05-0.20	Cu 0.50-0.60
3	X 02Cr25Ni7Mo4CuN	2507	0.030 *Max*	0.80	1.20*Max*	6.0-8.0	24.0-26.0	3.0-5.0	0.020	0.035	0.24-0.32	Cu 0.50 *Max*

Table 1 (*Concluded*)

Sl No.	**Grade Designation**		**C**, *Max*	**Si**, *Max*	**Mn**	**Ni**	**Cr**	**Mo**	**S**, *Max*	**P**, *Max*	**N**	**Others**
	Letter Symbol [*see* IS 1762 (Part 1)]	**Numerical Symbol ISS**										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)

Constituent	*Limits, Percent, Max*		
	Ferritic and Martensitic Steels	Austenitic Steels	
		Without Specified Molybdenum	With Specified Molybdenum
Titanium	—	0.10	0.10
Niobium	—	0.20	0.20
Molybdenum	0.30	0.70	—
Copper	0.30	0.50	0.70

Table 4 Mechanical Properties in Annealed Condition
(*Clauses* 10.3.1 *and* 10.4)

Sl No.	**Grade Designation**		**Hardness**, *Max*		**Yield Strength,** *Min*, MPa 0.2 Percent Proof Stress	**Tensile Strength** *Min,* MPa	**Elongation** Percent, *Min* 50 mm	**Bend Test** Dma
	Letter Symbol [*see*IS 1762 (Part 1)]	Numerical Symbol ISS	Brinell HBS/HBW	Rockwell HRB				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	X04Cr12Al	405	179	88	170	415	20	2a*
2	X07Cr17	430	183	89	205	450	22	2a*
3	X02Cr12Ti	409	179	88	170	380	20	a *
4	X02Cr12	409 M	180	88	280	450	18	a*
5	X04Cr12	410 S	183	89	205	415	22	a*
6	X02Cr18Ti	439	183	89	205	415	22	a *
7	X12Cr12	410	217	96	205	450	20	Not required
8	X20Cr13	420 S1	225	95	-	700, *Max*	15	Not required
9	X30Cr13	420 S2	235	97	-	740, *Max*	15	Not required
10	X40Cr13	420 S3	240	98	-	760, *Max*	12	Not required
11	X15Cr16Ni2	431	285	29[A]	-	-	-	Not required
12	X10Cr17Mn6Ni4N20	201	217	95	260	515	40	Not required
13	X07Cr17Mn12Ni4	201 A	217	95	260	540	40	Not required
14	X10Cr18Mn9Ni5	202	241	100	260	620	40	Not required
15	X10Cr17Ni7	301	217	95	205	515	40	Not required
16	X07Cr18Ni9	302	201	92	205	515	40	Not required
17	X02Cr17Ni7	301 L	241	100	220	550	45	Not required
18	X02Cr17Ni7N	301 LN	241	100	240	550	45	Not required
19	X04Cr19Ni9	304 S1	201	92	205	515	40	Not required
20	X02Cr19Ni10	304 S2	201	92	170	485	40	Not required
21	X07Cr19Ni9	304 H	201	92	205	515	40	Not required
22	X02Cr19Ni10N	304 LN	217	95	205	515	40	Not required
23	X04Cr19Ni9N	304 N	217	95	240	550	30	Not required
24	X06Cr18Ni12	305	183	88	170	485	40	Not required
25	X04Cr19Ni10Cu3Mo	305 Cu	201	92	205	515	40	Not required
26	X15Cr24Ni13	309	217	95	210	490	40	Not required
27	X04Cr23Ni14	309 S	217	95	205	515	40	Not required
28	X20Cr25Ni20	310	217	95	210	490	40	Not required
29	X04Cr25Ni20	310 S	217	95	205	515	40	Not required
30	X04Cr17Ni12Mo2	316	217	95	205	515	40	Not required
31	X02Cr17Ni12Mo2	316 L	217	95	170	485	40	Not required
32	X07Cr17Ni12Mo2	316 H	217	95	205	515	40	Not required
33	X02Cr17Ni12Mo2N	316 LN	217	95	205	515	40	Not required
34	X04Cr19Ni13Mo3	317	217	95	205	515	35	Not required
35	X02Cr19Ni13Mo3	317 L	217	95	205	515	40	Not required
36	X04Cr17Ni12Mo2Ti	316 Ti	217	95	205	515	40	Not required
37	X04Cr18Ni10Ti	321	217	95	205	515	40	Not required
38	X04Cr18Ni10Nb	347	201	92	205	515	40	Not required
39	X10Cr15Mn9Cu2Ni1N	N1	241	100	345	650	40	Not required
40	X8Cr16Mn8Cu2Ni2N	N2	241	100	310	650	40	Not required
41	X8Cr16Mn7Cu2Ni4N	N3	241	100	275	600	40	Not required
42	X02Cr22Ni6Mo3N	2205	293	32 [A]	450	655	25	Not required
43	X02Cr23Ni4CuN	2304	290	32[A]	400	600	25	Not required
44	X02Cr25Ni7Mo4CuN	2507	310	32[A]	550	795	15	Not required

a * = thickness of the test piece.

A = Rc scale.

(MTD 16)

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